Glenn T. Seaborg Center Seminar

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Synthesis at Extreme Periodicity: Understanding the Hydrothermal Chemistry of the Actinides

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4 pm
Building 70A-3377

Abstract

The chemical and structural versatility of actinides is without match in the periodic table. We utilize this feature to add flexibility into our syntheses that in turns leads to compounds with highly variable structures and physical properties. In approximately three years we have prepared more than sixty new actinide compounds. By utilizing hydrothermal and solventothermal methods, we can prepare these compounds in high yields in the form of single crystals. We have found that many of these compounds brightly luminesce, and those compounds containing U(IV) have shown unusual magnetic properties such as metamagnetic behavior. In the course of this work, we discovered a new oxoanion of I(V) - the tetraoxoiodate(V) anion, IO 43- . We have recently expanded our research program through collaborations with Los Alamos National Laboratory to include neptunium and plutonium. We are also in the process of establishing a radioisotope laboratory in the Leach Nuclear Science Center here at Auburn for working with transuranium elements.

Host: Wayne Lukens, x4035, wwlukens@lbl.gov